

CLAIMS

What is claimed is:

1. A polyacetal resin composition consisting
5 essentially of (a) a polyacetal resin, and (b) a low molecular weight
primary or secondary amino compound of low volatility, containing
at least one amino group and two or more carbon atoms, and
having a pK_b in the range of about 2 - 8; wherein the composition
is characterized by a formaldehyde concentration at room
10 temperature that is less than about 50% of the formaldehyde
concentration of the polyacetal resin itself.
2. A composition according to Claim 1 wherein the
amino compound has a pK_b in the range of about 4 - 8.
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3. A composition according to Claim 1 wherein the
amino compound is characterized by $T_{bp} > T_m - 60^\circ\text{C}$, where T_{bp} is
the boiling point of the amino compound and T_m is the melting
point of the polyacetal resin.
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4. A composition according to Claim 1 wherein the
amino compound is selected from the group consisting of
monoethanolamine, diethanolamine, 2-amino-2-ethyl-propanediol,
2-amino-2-methyl-propanol, tris(hydroxymethyl)aminomethane,
25 ethyl *p*-aminobenzoate, methyl anthranilate, butyl *m*-
aminobenzoate, and mixtures thereof.

5. A composition according to Claim 1 wherein the amino compound is selected from the group consisting of tris(hydroxymethyl)aminomethane, ethyl *p*-aminobenzoate, and mixtures thereof.

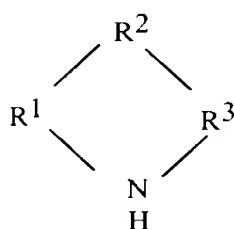
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6. A composition according to Claim 1 wherein the amino compound is present in the composition in an amount of about 0.01~10 parts by weight, per 100 parts by weight of the polyacetal resin.

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7. A composition according to Claim 1 wherein the polyacetal resin is an acetal copolymer.

8. A composition according to Claim 1 further
15 consisting essentially of an organic cyclic compound having an active imino group according to the formula



20 wherein R^1 , R^2 and R^3 are divalent organic radicals.

9. A composition according to Claim 1 further consisting essentially of at least one additive selected from the

group consisting of nucleating agents, mold release agents, surfactants, impact modifiers, reinforcing agents, anti-static agents, plasticizers, lubricants, fillers and colorants.

- 5 10. A polyacetal resin composition comprising (a) a polyacetal resin, and (b) one or more amino compounds selected from the group consisting of diethanolamine, ethyl *p*-aminobenzoate, methyl anthranilate and butyl *m*-aminobenzoate; wherein the composition is characterized by a formaldehyde
- 10 concentration at room temperature that is less than about 50% of the formaldehyde concentration of the polyacetal resin itself.

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11. A composition according to Claim 10 wherein the amino compound has a pKb in the range of about 2 - 8.

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12. A composition according to Claim 10 wherein the amino compound is ethyl *p*-aminobenzoate.

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13. A composition according to Claim 10 wherein the

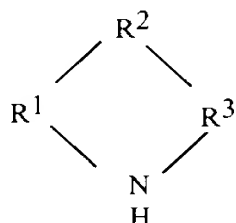
20 amino compound is present in the composition in an amount of about 0.01~10 parts by weight, per 100 parts by weight of the acetal homopolymer resin.

14. A composition according to Claim 10 wherein the

25 polyacetal resin is an acetal copolymer.

15. A composition according to Claim 10 wherein the polyacetal resin is an acetal homopolymer resin end-capped with an ester group.

5 16. A composition according to Claim 10 further comprising an organic cyclic compound having an active imino group according to the formula



10 wherein R^1 , R^2 and R^3 are divalent organic radicals.

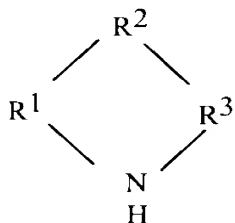
17. A composition according to Claim 10 further comprising at least one additive selected from the group consisting
15 of nucleating agents, mold release agents, surfactants, stabilizers, impact modifiers, reinforcing agents, anti-static agents, antioxidants, plasticizers, lubricants, fillers and colorants.

18. A polyacetal resin composition comprising (a) a
20 polyacetal resin, and (b) succinimide; wherein the composition is characterized by a formaldehyde concentration at room temperature that is less than about 50% of the formaldehyde concentration of the polyacetal resin itself.

19. A composition according to Claim 18 wherein the succinimide is present in the composition in an amount of about 0.01~10 parts by weight, per 100 parts by weight of the polyacetal resin.

20. A composition according to Claim 18 wherein the polyacetal resin is an acetal copolymer.

21. A composition according to Claim 18 further comprising an organic cyclic compound having an active imino group according to the formula



wherein R¹, R² and R³ are divalent organic radicals.

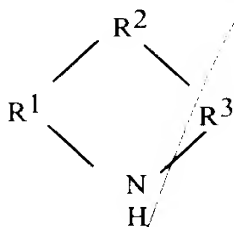
22. A composition according to Claim 18 further comprising at least one additive selected from the group consisting of nucleating agents, mold release agents, surfactants, stabilizers, impact modifiers, reinforcing agents, anti-static agents, antioxidants, plasticizers, lubricants, fillers and colorants.

23. A polyacetal resin composition comprising (a) a polyacetal resin, and (b) anthranilic acid, 4-amino benzoic acid, or a mixture thereof; wherein the composition is characterized by a formaldehyde concentration at room temperature that is less than about 50% of the formaldehyde concentration of the polyacetal resin itself.

24. A composition according to Claim 23 wherein the anthranilic acid, 4-amino benzoic acid or mixture thereof is present in the composition in an amount of about 0.01~10 parts by weight, per 100 parts by weight of the polyacetal resin.

25. A composition according to Claim 23 wherein the polyacetal resin is an acetal copolymer.

26. A composition according to Claim 23 further comprising an organic cyclic compound having an active imino group according to the formula



wherein R^1 , R^2 and R^3 are divalent organic radicals.

27. A composition according to Claim 23 further comprising at least one additive selected from the group consisting of nucleating agents, mold release agents, surfactants, stabilizers,

impact modifiers, reinforcing agents, anti-static agents,
antioxidants, plasticizers, lubricants, fillers and colorants.

28. A shaped article produced from a composition
5 according to Claim 1.

29. A shaped article produced from a composition
according to Claim 10.

10 30. A shaped article produced from a composition
according to Claim 18.

31. A shaped article produced from a composition
according to Claim 23.

15 32. A method for reducing the formaldehyde
concentration of a part molded from a polyacetal resin, comprising
(a) forming a composition consisting essentially of (i)
the polyacetal resin, and (ii) a low molecular weight primary
20 or secondary amino compound of low volatility, containing at
least one amino group and two or more carbon atoms, and
having a pKb in the range of 2 – 8; wherein the composition
is characterized by a formaldehyde concentration at room
temperature that is less than about 50% of the formaldehyde
25 concentration of the polyacetal resin itself; and
(b) molding the part from the composition.

33. A method according to Claim 32 further comprising the step of selecting as the amino compound a member of the group consisting of monoethanolamine, diethanolamine, 2-amino-2-ethyl-propanediol, 2-amino-2-methyl-propanol,
5 tris(hydroxymethyl)aminomethane, ethyl *p*-aminobenzoate, methyl anthranilate, butyl *m*-aminobenzoate, and mixtures thereof.

34. A method according to Claim 33 further comprising the step of selecting as the amino compound a member
10 of the group consisting of tris(hydroxymethyl)aminomethane, ethyl *p*-aminobenzoate, and mixtures thereof.

35. A method for reducing the formaldehyde concentration of a part molded from an polyacetal resin,
15 comprising
(a) forming a composition comprising (i) the polyacetal resin, and (ii) one or more amino compounds selected from the group consisting of diethanolamine, ethyl *p*-aminobenzoate, methyl anthranilate and butyl *m*-
20 aminobenzoate; wherein the composition is characterized by a formaldehyde concentration at room temperature that is less than about 50% of the formaldehyde concentration of the polyacetal resin itself; and
(b) molding the part from the composition.

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36. A method according to Claim 35 further comprising the step of selecting as the amino compound ethyl *p*-aminobenzoate.

37. A method for reducing the formaldehyde concentration of a part molded from a polyacetal resin, comprising

- 5 (a) forming a composition comprising (i) the polyacetal resin, and (ii) succinimide; wherein the composition is characterized by a formaldehyde concentration at room temperature that is less than about 50% of the formaldehyde concentration of the polyacetal resin itself; and
- (b) molding the part from the composition.

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38. A method for reducing the formaldehyde concentration of a part molded from a polyacetal resin, comprising

- 15 (a) forming a composition comprising (i) the polyacetal resin, and (ii) anthranilic acid, 4-amino benzoic acid, or a mixture thereof; wherein the composition is characterized by a formaldehyde concentration at room temperature that is less than about 50% of the formaldehyde concentration of the polyacetal resin itself; and
- (b) molding the part from the composition.

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